

JAMES RIVER BASIN

02037500 JAMES RIVER NEAR RICHMOND, VA

LOCATION.--Lat 37°33'47", long 77°32'50", Henrico County, Hydrologic Unit 02080205, on left bank 0.2 mi upstream from Huguenot Memorial Bridge, 0.5 mi southwest of Richmond city limits, 1.7 mi downstream from Boshier Dam, 3.3 mi upstream from Powhite Creek, and at mile 116.6.

DRAINAGE AREA.--6,758 mi².

PERIOD OF RECORD.--October 1934 to current year. Gage-height records collected in vicinity of Mayo's Bridge, at mile 109.5, 1876-1956, and at mile 108.7 since 1957, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply. Datum of gage is 98.82 ft above sea level.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 7, Nov. 18, 19, Mar. 4, Jun. 14, and Aug. 6, which are fair. City of Richmond takes from 40 ft³/s to 90 ft³/s for water supply from river downstream from gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants upstream from station. Above 18.2 ft stage, there is interchange of flow with James River and Kanawha Canal. Records of daily discharge include diversion by city of Richmond but do not include flow in James River and Kanawha Canal (station 02037000) which diverts around station. National Weather Service gage-height telemeter at station. Maximum discharge, 313,000 ft³/s, includes canal flow. Minimum daily discharge of James River and James River and Kanawha Canal combined, 214 ft³/s, Oct. 5, 1941, caused by recharging of the pool above Boshier Dam after the canal gates were closed. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 61,600 ft³/s, Sep 30, gage height, 14.21 ft stage rising, peak occurred Oct 1, 1999, peak discharges greater than base discharge of 50,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 25	1630	*24,900	*9.46	No peak greater than base discharge.			

Minimum discharge, 314 ft³/s, Aug 14, gage height, 3.02 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	990	1140	1460	1890	4830	3920	5430	3300	2220	1020	921	864
2	998	1140	1390	1780	4580	4260	5550	3190	1930	1060	889	944
3	921	1290	1420	2270	5420	3940	6270	3280	1760	855	632	742
4	861	1250	1450	3630	8020	e3910	6020	3100	1770	1150	570	767
5	891	1440	1390	6350	7100	4800	5640	3050	1750	1080	890	1310
6	883	1640	1390	5030	7370	4800	4990	2940	1620	952	e680	2700
7	e926	1500	1410	3760	6450	5110	4790	2900	1710	979	632	7100
8	976	1330	1440	3760	5600	5730	4750	2840	1700	883	602	12500
9	1140	1360	1570	3230	5060	5070	4620	2860	1640	856	571	9670
10	2020	1300	1920	2940	4600	5100	4390	3420	1320	878	422	6490
11	2650	1260	2370	2920	4150	5320	4280	4920	1330	873	469	6200
12	2040	1440	2530	2860	4180	5020	4490	5230	1350	958	476	4680
13	1940	1380	2470	2910	4000	4840	4570	4200	1280	861	388	3290
14	1690	1450	2800	2900	3890	4640	4570	4390	e1250	822	345	2570
15	1440	1460	2900	3260	3590	8460	4130	8410	1230	904	522	2220
16	1510	1490	3180	3650	3340	20000	4310	8360	1370	1170	417	6740
17	1200	1480	2780	5320	3240	14500	4300	11000	1250	1060	352	12400
18	1090	e1450	2300	6500	3270	13200	4200	9490	1270	876	485	8200
19	1170	e1370	2170	9320	4500	13500	4070	7280	1020	853	480	4940
20	1210	1350	2140	9140	5870	16800	3960	5790	1400	1130	710	3320
21	1090	1450	2000	6790	5800	14700	3750	4950	1380	834	797	2440
22	1210	1360	1800	5780	6080	13700	3780	4290	1510	846	662	2240
23	1140	1390	1760	5250	5610	12800	3680	4400	1600	842	764	2130
24	1120	1450	1570	6120	4970	12300	3610	5160	1280	926	834	2310
25	1140	1350	1780	20500	4250	11500	3490	4430	971	1070	835	2240
26	1070	1380	1820	23000	4040	10300	3530	3650	844	934	774	1850
27	1190	1400	1990	17900	3810	8970	3330	3120	806	874	840	1750
28	1040	1400	1900	11800	3650	7870	3220	3010	1060	1050	1980	2030
29	1120	1490	1830	8490	---	6930	3260	2780	1040	889	1510	2980
30	1100	1440	1850	6900	---	6400	3270	2470	1140	863	1130	26000
31	1180	---	1930	5680	---	5860	---	2320	---	846	933	---
TOTAL	38946	41630	60710	201630	137270	264250	130250	140530	41801	29194	22512	143617
MEAN	1256	1388	1958	6504	4902	8524	4342	4533	1393	942	726	4787
MAX	2650	1640	3180	23000	8020	20000	6270	11000	2220	1170	1980	26000
MIN	861	1140	1390	1780	3240	3910	3220	2320	806	822	345	742
CFSM	.19	.21	.29	.96	.73	1.26	.64	.67	.21	.14	.11	.71
IN.	.21	.23	.33	1.11	.76	1.45	.72	.77	.23	.16	.12	.79

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1999, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4002	4687	6784	9281	10940	12950	10900	7795	5557	3183	3643	3223
MAX	19090	30480	26480	25300	34960	32740	35900	24280	30910	11300	21710	18390
(WY)	1938	1986	1949	1937	1998	1993	1987	1989	1972	1972	1969	1996
MIN	177	338	450	837	3243	2988	2766	2137	904	76.1	149	125
(WY)	1942	1942	1966	1966	1959	1981	1966	1941	1964	1966	1966	1963

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1937 - 1999
ANNUAL TOTAL	3959409	1252340	
ANNUAL MEAN	10850	3431	6890
HIGHEST ANNUAL MEAN			13540
LOWEST ANNUAL MEAN			2666
HIGHEST DAILY MEAN	84100	Mar 22	a26000
LOWEST DAILY MEAN	861	Oct 4	345
ANNUAL SEVEN-DAY MINIMUM	922	Oct 2	424
INSTANTANEOUS PEAK FLOW			24900
INSTANTANEOUS PEAK STAGE			9.46
INSTANTANEOUS LOW FLOW			314
ANNUAL RUNOFF (CFSM)	1.61	.51	1.02
ANNUAL RUNOFF (INCHES)	21.79	6.89	13.85
10 PERCENT EXCEEDS	27700	6910	15000
50 PERCENT EXCEEDS	4100	2130	4120
90 PERCENT EXCEEDS	1160	859	944

- a Stage rising, peak occurred Oct 1, 1999.
- b Includes canal flow.
- c Result of diversion by Boshier Dam construction.
- d Also Sep 9-15, 1966, Sep 30, Oct 5, 6, 1968, and Oct 8-10, 1970.
- e Estimated.
- f Also Sep 9, 1966.
- g Not determined.
- h Probably occurred Sep 8-15, 1966.

